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(54) Title: METHODS AND SYSTEMS FOR PROVIDING INFORMATION ABOUT PROGRAMS AVAILABLE FOR VIEWING

	12 CHANNEL	14 START TIME	CURRENT SHOW	16 START TIME	NEXT SHOW
18					
20	2- NBC	10:00AM	BATMAN	11:00AM	SPIDERMAN
	3- CBS	9:30AM	HOME FINANCE	10:30AM	HOME REPAIR
	4- ABC	10:05AM	SPECIAL REPORT:RUSSIA	10:30AM	TODAY IN HISTORY
	5- FOX	10:00AM	AS THE WORLD TURNS	10:30AM	DYNASTY
70	6- CNN	10:15AM	HEADLINES	10:45AM	SPORTS HIGHLIGHTS
72	7- ESPN	10:00AM	NASCAR HEROES	10:30AM	X500 NASCAR PRE-RACE SHOW
74	8- CSPAN	10:00AM	CONGRESS	11:00AM	SENATE
76	9- MTV	9:30AM	VIDEOS	10:30AM	STARSLIVE
78	10- HBO	10:05AM	ROCKYXX	12:35PM	STAR WARS XX
80	11- SHOW	10:00AM	TERMINATOR V	12:30PM	TERMINATOR V

## (57) Abstract

An user interface is presented on a monitor of a media device for providing information about available programs. The user interface includes an array having three columns (channel, current show, and next show) with commonly aligned rows. Each row of the channel column includes an indicator. Each row of the current show column includes a title naming a program currently available on a channel of the media device corresponding to the indicator in a commonly aligned row of the channel column. Each row of the next show column includes a title naming a show available after the current program on the same channel. The currently available program may be displayed on the monitor in response to a viewer selected row, indicator, and/or title in the array.

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METHODS AND SYSTEMS FOR PROVIDING INFORMATION  
ABOUT PROGRAMS AVAILABLE FOR VIEWING

5 FIELD OF THE INVENTIONS

The present inventions relate to television and other media that present programs for viewing, and particularly relate to user interfaces for the display and the selection of programs for viewing.

10

BACKGROUND

Newspapers and other paper publications conveniently print guides to the programs available for viewing on television. But a newspaper or other paper publication may not always be available to a viewer when the viewer decides to watch some television. For convenience, cable companies typically display a guide to the programming they offer on a dedicated channel of the cable service. In addition to convenience, the guide may be provided by the cable company as a vehicle to carry advertising, and thus, provide additional revenue to the cable company. A viewer may tune his or her television to the channel carrying the guide and review the programming information to choose a program to watch. Such a guide on a television monitor may be referred to as a channel guide, program guide, electronic guide, electronic television guide, electronic programming guide (EPG), a user interface, program schedule, or by similar terms. Generally, herein the term "user interface" is used with respect to the present inventions.

25 Electronic programming guides are generally known. Examples of electronic programming guides are described in the patent to *Mankovitz*, United States Patent No. 5,559,550, entitled "Apparatus and Methods for Synchronizing a Clock to a Network Clock," as well as in other publicly available documents. Information regarding the extraction of a program schedule from a signal provided to a television so as to create a user interface may be obtained from the patent to *Mankovitz*, United States Patent No. 30 5,640,484, entitled "Switch for Automatic Selection of Television Signal Sources for Delivery of Television Guide Data."

In addition to television, electronic programming guides may be used in other environments. For example, an electronic programming guide may be useful in the context of the global information network (Internet) or other computer or data networks. Some of these networks offer multiple programs available for selection by a viewer to read, to watch, to use, to interact with, etc. To gain information about the available programs and to make a selection, the viewer may use an electronic programming guide that is displayed on a computer monitor or similar device used by the viewer. Televisions, computers, networked computers, and the like are referred to herein generally as "media devices".

When using an electronic programming guide, a viewer typically is interested in information including: (1) the channel or other locator of an available program; (2) the temporal characteristics of an available program such as start time, duration, end time, current availability, etc.; and (3) the name, title, or other identifier of an available program. Also, a viewer may be interested in gaining information about the availability of programs of a particular type or related to a specific or specialty topic. For example, a viewer may be interested in knowing whether any sports programs are available, and particularly, whether any baseball games are available for viewing.

In addition, a viewer may be interested in knowing the available programming during a certain time slot or interval. For example, a viewer may have a choice with respect to scheduling time for television or other media use. Thus, the viewer may not necessarily be interested in the current or other near term programming available. Rather, the viewer is interested in knowing what programming is available when the viewer is likely to schedule his or her television or other media break. Based on a review of the available programming during any particular time slot, the viewer may decide to plan to take the television break at the initially selected time, or reschedule the break for a time when more interesting programming to the viewer is available.

Accordingly, there is a need for an electronic programming guide that provides a viewer with information such as: (1) the channel or other locator of an available program; (2) the temporal characteristics of an available program such as start time, duration, end time, current availability, etc.; and/or (3) the name, title, or other identifier

of an available program. There is also a need for an electronic programming guide that provides a viewer with information about the availability of programs of a particular type or related to a specific or specialty topic. In addition, there is a need for an electronic programming guide that provides a viewer with information as to the available programming during a certain time slot or interval as selected by the viewer.

## SUMMARY

Stated generally, the present inventions include methods, systems, and user interfaces for presenting information related to available programming to a viewer and/or other user. An exemplary user interface is presented on a monitor of a media device (such as television screen or computer screen). The exemplary user interface provides information as to the channels (or other location indicator), titles, and/or time characteristics of available programming.

Advantageously, the viewer may interact with the user interface so as to have a selected portion or portions of the user interface highlighted for clearer viewing or for other reasons. For example, the viewer may select a topic from a list of topics, and have a program or all programs related to the topic highlighted on the user interface. Further, the viewer may hone his or her programming selection by first selecting a general topic from the list of topics, and then further selecting a specialty topic from a specialty topic list that is related to the general topic selected by the viewer. The program or programs related to the specialty topic may be highlighted on the user interface. The viewer also may interact with the user interface so as to select programming (from the highlighted programs on the user interface or in other ways) and have the programming displayed on the monitor of the media device.

In addition, the viewer may interact with an exemplary user interface by designating a time period or time slot in which the viewer is interested. In response to the designation of a time period, the user interface may provide information such as channel (or other locator), title, and/or time characteristics of programming available during the designated time period. Advantageously, the viewer may change the time period. In response to the change, the user interface may change the information provided so as to

accurately reflect the programming available during the changed, designated time period. Further, the viewer may interact with the user interface so as to choose a program available during the designated time period and have the program displayed on the monitor of the media device.

5            Particularly described, the exemplary embodiments of the present inventions provide user interfaces for presentation on a monitor of a media device. An exemplary user interface may include a topic list having topic entries such as "local news", "national news", "world news", "all sports", and the like. In addition, a topic entry may include or correspond to a specialty topic list. The specialty topic list may include specialty topic  
10        entries related to the topic entry. For example, a topic entry may be "all sports." This topic entry may include a specialty topic list with the following specialty topic entries: "baseball"; "basketball", "football", and the like. Thus, the viewer may select a topic entry such as "all sports" from the topic list. In response, the specialty topic list corresponding to the selected topic entry may be displayed, and using the "all sports"  
15        topic entry, the specialty topic list may include the following specialty topic entries: "baseball"; "basketball", and "football. Further, a specialty topic entry may be selected as an elected specialty topic entry and that elected specialty topic entry may be highlighted on the user interface.

             In addition to the topic list and the specialty topic list, an exemplary user interface  
20        may include an array with programming information. Of course, the array with programming information may be displayed before or after display of the topic list and the specialty topic list.

             An exemplary array with programming information includes three columns (channel, current show, and next show) with commonly aligned rows. Each row of the  
25        channel column includes a channel indicator. Each row of the current show column includes a current show title naming a program available for viewing at the current time on a channel of the media device corresponding to the channel indicator in a commonly aligned row in the channel column. Each row of the current show column also may include a start time for the program available for viewing at the current time. Each row of  
30        the next show column includes a next show title naming a show available for viewing

after the program available for viewing at the current time on the channel of the media device corresponding to the channel indicator in the commonly aligned row in the channel column. Each row of the next show column also may include a start time for the program available as the next show after the current show.

5           Advantageously, the array of this exemplary user interface provides a viewer with information as to the current programs available (i.e., programs in progress) on the available channels, and as to the next show available on any of these channels.

          In addition, the array of this exemplary user interface allows for a row, a channel indicator, or a current show title to be selected by a viewer, and if selected, to be  
10 highlighted. In addition, the viewer may provide an indication that the program available for view at the current time and corresponding to the selected (and perhaps highlighted) row, channel indicator, or current show title may be displayed on the monitor of the media device.

          Further, the exemplary array may interact with the topic list and the specialty topic  
15 list discussed above. For example, the array may respond to the selection of a selected topic entry or to the election of an elected specialty topic entry. In particular, the response may be the highlighting in the array of a program having a topic in common with the selected topic entry and/or with the elected specialty topic entry. Further, the array may be operative to receive an indication from the viewer to view the program having the  
20 topic in common with the selected topic entry and/or with the elected specialty topic entry. The array then may cause the program to be displayed on the monitor of the media device.

          Advantageously, the present inventions include another exemplary user interface. This exemplary user interface includes a time slot and an array. The time slot provides  
25 for the display of a time period as may be selected by the viewer. The array includes two columns (channel and program) having commonly aligned rows. Each row of the channel column includes a channel indicator. Each row of the program column includes a program title naming a program available for viewing during the selected time period on a channel of the media device corresponding to the channel indicator in a commonly  
30 aligned row in the channel column.

This exemplary user interface allows a viewer to select a time period, and then, to view the programming that is available on the available channels during that selected time period.

5 This exemplary user interface allows a viewer to change the time period in the time slot. If the time period is changed, then the program title in each row of the program column may change to a different program title naming a different program available for viewing during the different selected time period. Of course, a program title in a particular row may not appear to the viewer to change if the same program is available during the different selected time period as well as the originally selected time period.

10 Further in this exemplary user interface, the array may be receptive to a selection by the viewer of a selected row, a selected channel indicator, or a selected program title. In response, the selected row, the selected channel indicator, or the selected program title may be highlighted. Further, the program corresponding to the selected row, the selected channel indicator, or the selected program title may be displayed on the monitor of the  
15 media device.

In sum, the present inventions include methods, systems, and user interfaces for presenting information related to available programming to a viewer and for allowing interaction with the viewer.

20 Therefore, it is an object of the present inventions to satisfy a need for an electronic programming guide that provides a viewer with information such as: (1) the channel or other locator of an available program; (2) the temporal characteristics of an available program such as start time, duration, end time, current availability, etc.; and/or (3) the name, title, or other identifier of an available program.

25 It is also an object of the present inventions to satisfy a need for an electronic programming guide that provides a viewer with information about the availability of programs of a particular type or related to a specific or specialty topic.

It is an additional object of the present inventions to satisfy a need for an electronic programming guide that provides a viewer with information as to the available programming during a certain time slot or interval as selected by the viewer.



That the present inventions and the exemplary embodiments thereof accomplish the objects of the inventions set forth herein will become apparent from the detailed description that follows.

## 5 BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 illustrates an exemplary embodiment of a user interface according to the present inventions.

Fig. 2 illustrates another exemplary embodiment of a user interface according to the present inventions.

10 Fig. 3 illustrates yet another exemplary embodiment of a user interface according to the present inventions.

Fig. 4 illustrates another exemplary embodiment of a user interface according to the present inventions.

15 Fig. 5 illustrates another exemplary embodiment of a user interface according to the present inventions.

Fig. 6 illustrates another exemplary embodiment of a user interface according to the present inventions.

Fig. 7 illustrates another exemplary embodiment of a user interface according to the present inventions.

20

## DETAILED DESCRIPTION

25 Stated generally, the present inventions include methods, systems, and user interfaces for presenting information related to available programming to a viewer and/or other user. The term "viewer" is used herein to include generally a person who may be reading, watching, viewing, programming, or otherwise interacting with a user interface on a monitor of a media device such as a television monitor, a computer monitor, or the like. In some cases, the viewer may be an entity or other device rather than the person. For example, the viewer may be a computer, another information trans/receiver, or the like.

The exemplary user interfaces including the arrays, topic lists, and specialty topic lists described herein generally possess the characteristics of typical user interfaces as used in televisions, video recorders (VCRs), and in computers and other data devices. The user interfaces may be reviewed and the display of the user interfaces rearranged by  
5 being scrolled through (preferably in a vertical direction). The viewer may use any of various up/down controllers such as remote control buttons, scrollbars, on-screen hot-spots, etc. In addition, any one of the user interfaces and separately including the arrays, topic lists, or specialty topic lists may appear on its own screen or display or it may appear with one or more of the other user interfaces, arrays, topic lists, or specialty topic  
10 lists. Advantageously, the present inventions allow the viewer to selectively configure and use the user interfaces including the arrays, topic lists, and specialty topic lists of the user interfaces in the most convenient and helpful manner to the viewer.

Fig. 1 illustrates an array 10 that may appear as or as part of a user interface presented on a monitor of a media device (such as television screen or computer screen).  
15 The exemplary array 10 provides information as to the channels (or other location indicators), titles, and/or time characteristics of available programming. With respect to television, the information in the array 10 (or any other of the exemplary user interfaces described herein) may be derived from television signals whose source may include a terrestrial antenna, a cable, a satellite, or the like, or from data signals provided through a  
20 data network or other computer medium. In particular, the information may be embedded in the vertical blanking interval lines of the television signals and retrieved by a vertical blanking interval decoder of the television. Of course, the information may be delivered in other ways such as by way of tones in the audio signal of the television signals delivered to the television.

25 When the viewer desires to see a user interface, the viewer may interact directly with the media device (such as through a keypad, mouse, or other input device) or indirectly with the media device through the use of a (infrared) remote control or the like. The viewer inputs the instructions for the display of the user interface. For example, the viewer may use the remote control to call up a particular channel on the television which  
30 displays the user interface such as the exemplary array 10 illustrated in Fig. 1.

Alternatively, the viewer may select the user interface for display on a monitor from a menu or other options associated with the media device. Further, the viewer may interact with the user interface in a conventional manner through the use of a keypad, mouse, or other input device such as a remote control unit or the like.

5

An Exemplary Current Show/Next Show Array - Fig. 1

The array 10 of Fig. 1 includes three columns with commonly aligned rows. A first column 12 is referred to as the channel column 12 because each row of the channel column includes a channel indicator. The top row or title row is not considered a row of information related to programming, and is referred to herein separately as a top or title row. For example, the title row 18 includes the term "Channel" in the channel column 12. Every row after the title row 18 includes a channel indicator. In the first row 20 after the title row 18, the channel indicator includes "2-NBC" in the channel column 12. The number of rows may be limited by the amount of programming information available.

15 In this example, the channel indicator includes two pieces of information: (1) the "2" refers to the channel of this service which carries the programming identified in the corresponding current show and next show columns; and (2) the "NBC" refers to the "National Broadcast Company" which is the service provider (or network) that provides the programming identified in the corresponding current show and next show columns.

20 Both of these pieces of information are included for convenience of the viewer. The channel indicator may include one or the other of these two pieces of information. Alternatively, the channel indicator (also referred to as indicator or locator) may include other terms to convey the identity of the channel or other mechanism of programming transport that carries the programming identified in the corresponding current show and

25 next show columns.

In the array 10 and adjacent to the first column 12 is another column referred to as the current show column 14 because each row (except the top or title row) of the current show column includes a current show title. The current show title names a program available for viewing at the current time on a channel of the media device corresponding

30 to the channel indicator in the commonly aligned row in the channel column 12. For

example, the title row 18 includes the term "Current Show" in the column 14. Every row after the title row 18 includes a current show title. In the first row 20 after the title row 18, the current show title is "Batman". In other words, the Batman show is the program that is currently available on channel 2.

5        Each row of the current show column 14 (except the top or title row) also may include a start time for the program available for viewing at the current time. For example, assume the viewer is viewing the array 10 at 10:20 AM. As illustrated in Fig. 1 in row 20 of the current show column 14, a start time for the Batman show is indicated as 10:00 am. Advantageously, this array 10 provides the viewer with information the  
10    Batman show is the currently available programming on channel 2. But the Batman show had a start time of 10:00 AM. From this information, the viewer may deduce the Batman show has been in progress for twenty minutes. The fact the Batman show has been in progress for a certain number of minutes is information that may be useful to the viewer in reaching a programming decision.

15        In the array 10 and adjacent to the second column 14 is another column referred to as the next show column 16. Each row (except the top or title row) of the next show column includes a next show title. The next show title names a show available for viewing after the currently available program on the channel of the media device corresponding to the channel indicator in the commonly aligned row in the channel  
20    column 12. For example, the title row 18 includes the term "Next Show" in the column 16. Every row after the title row 18 includes a next show title. In the first row 20 after the title row 18, the next show title is "Spiderman". In other words, the Spiderman show is the program that follows the Batman show on channel 2.

Each row of the next show column 16 also may include a start time for the next  
25    show. For example, assume the viewer is viewing the array 10 at 10:20 AM. As illustrated in Fig. 1 in row 20 of the next show column 16, a start time for the Spiderman show is indicated as 11:00 AM. Advantageously, this array 10 provides the viewer with information the Spiderman show is the next available programming on channel 2. But the Spiderman show has a start time of 11:00 AM. From this information, the viewer may  
30    deduce the Spiderman show will come on in forty minutes. The fact that the Spiderman

show is scheduled to come on after a certain amount of time is additional information the viewer may use in reaching a decision about programming.

Advantageously, the array 10 of this exemplary user interface provides a viewer with information as to the current programs available (i.e., programs in progress) on the available channels, and as to the next show available on any of these channels. Further, the array 10 may include start times for the current shows and for the next shows. The array 10 is advantageously configured so that whenever the viewer consults the array 10, the array 10 is operative to determine the time (10:20 AM in our example). Based on that time determination, programming information is garnered so that the array 10 displays the current programs available and the next shows available. The start times may vary from row to row in the current show column and the next show column. But time is not the focus of this exemplary array 10. Rather, the focus of this exemplary array 10 is to provide the viewer with information as to the current shows available and the next shows available. If any of these shows catches the viewer's interest, the viewer may tune into or otherwise cause the show of interest to be displayed. If a viewer selects a show that is included in the current shows column, then the viewer need not consult the start time for that selected show because the viewer is assured the selected show is a currently available show. Nevertheless, the viewer may be interested in the start time to see how much of the show he or she may have missed.

In addition, the array 10 of this exemplary user interface allows for a row, a channel indicator, or a current show title to be selected by a viewer. The viewer's selection may be highlighted such as through cross hatching, bolding, coloring, or otherwise differentiating the selection from the other information in the array 10. In addition, the viewer may provide an indication that a currently available program corresponding to a selected (and perhaps highlighted) row, channel indicator, or current show title is to be displayed on the monitor of the media device. In other words, the viewer may choose to view a currently available program based on his or her review of the array 10. The viewer may initiate the display of his or her choice, by selecting a row, a channel indicator, or a current show title on array 10. In response, the selection may be highlighted. In some embodiments, the viewer may otherwise or in addition provide an

indication (such as a double-click on a mouse or the like) that he or she desires to view the selected programming on the monitor of the media device. In response to the selection and/or to the indication, the programming is displayed.

5 An Exemplary Time Slot Array - Fig. 2

As explained above, the focus of the exemplary array 10 in Fig. 1 is on the shows currently available and next available, rather than on time. In contrast, the exemplary time slot array 22 of Fig. 2 is focused on time, and particularly, on time slots during a time period. A viewer may be interested in knowing what is available during a time  
10 period such as two hours. The exemplary time slot array 22 presents the viewer with such temporal information by providing the information based on time slots within the time period. Advantageously, the time period may be selected by the viewer, and also, in some embodiments, the duration of the time slots within the time period may be selected by the viewer. Conveniently, the exemplary time slot array 22 illustrates a two hour time period  
15 with four time slots of thirty minutes each, which compares well to the format of television programs.

The array 22 of Fig. 2 includes five columns with commonly aligned rows. A first column 24 is referred to as the channel column 24 because each row of the channel  
20 column includes a channel indicator. The top row or title row is not considered a row of information related to programming, and is referred to herein separately as a top or title row. The number of rows may be limited by the amount of programming information available.

In this example, as with the array 10 of Fig. 1, the channel indicator includes two pieces of information: (1) the "2" refers to the channel of this service which carries the  
25 programming identified in the corresponding current show and next show columns; and (2) the "NBC" refers to the "National Broadcast Company" which is the service provider (or network) that provides the programming identified in the corresponding current show and next show columns. Both of these pieces of information are included for convenience of the viewer. The channel indicator may include one or the other of these two pieces of  
30 information. Alternatively, the channel indicator (also referred to as indicator or locator)

may include other terms to convey the identity of the channel or other mechanism of programming transport that carries the programming identified in the corresponding current show and next show columns.

5 In the array 22 and adjacent to the first column 24 is the first time slot column 26 of the four time slot columns 26, 28, 30, 32. As indicated in the top or title row 34 of the first time slot column 26, this column relates to the thirty minute time slot of 10:00 - 10:30 AM. Each row (except the top or title row) of the first time slot column 26 includes a show title. The show title names a program available for viewing during the 10:00 - 10:30 AM time slot on a channel of the media device corresponding to the channel  
10 indicator in the commonly aligned row in the channel column 24. In the first row 36 after the title row 34, the show title is "Batman". when more than one program may be available during the time slot, then the program which is available for the most time during the time slot may be named in the show title.

In the time slot array 22 and adjacent to the first time slot column 26 is a second  
15 time slot column 28. As indicated in the top or title row 34 of the second time slot column 28, this column relates to the thirty minute time slot of 10:30 - 11:00 AM. Generally, the time slot columns are arranged in the array 22 such that the earliest time slot is covered by the first time slot column, the next earliest time slot is covered by the second time slot column, which is placed adjacent to the right of the first time slot  
20 column. Additional time slot columns are added to the right to cover time slots until the time period is covered.

Referring again to the second time slot column 28, each row (except the top or title row) of the second time slot column 28 includes a show title. The show title names a show available for viewing during the corresponding time slot, i.e., 10:30 - 11:00 AM on  
25 the channel of the media device corresponding to the channel indicator in the commonly aligned row in the channel column 24. In the first row 36 after the title row 34, the show title is "Batman". The reader will note the Batman show also is the show title in the first time slot column 26 in the commonly aligned row. Advantageously, the show title for "Batman" is displayed in the second time slot column 28 as well to provide the viewer

with information as to the show available during the second time slot of 10:30 - 11:00 AM.

The third time slot column 30 and the fourth time slot column 32 are configured in similar fashions to the first time slot column 26 and second time slot column 28 discussed  
5 above. Advantageously, the time slot array 22 of this exemplary user interface provides a viewer with information as to the shows or programs available during time slots of a time period.

In addition, the time slot array 22 of this exemplary user interface allows for a row, a channel indicator, or a show title to be selected by a viewer. The viewer's  
10 selection may be highlighted such as through cross hatching, bolding, coloring, or otherwise differentiating the selection from the other information in the array 22. In addition, the viewer may provide an indication that a show corresponding to a selected (and perhaps highlighted) row, channel indicator, or show title is to be displayed on the monitor of the media device. In other words, the viewer may choose to view a show  
15 program based on his or her review of the array 22. The viewer may initiate the display of his or her choice, by selecting a row, a channel indicator, or a show title on array 22. In response, the selection may be highlighted. In some embodiments, the viewer may otherwise or in addition provide an indication (such as a double-click on a mouse or the like) that he or she desires to view the selected programming on the monitor of the media  
20 device. In response to the selection and/or to the indication, the programming is displayed.

### An Exemplary Topic List - Fig. 3

The exemplary current show/next show array 10 in Fig. 1 provides a viewer with  
25 information as to currently available and next available programming. The exemplary time slot array 22 in Fig. 2 provides a viewer with programming information based on time slots over a time period. Yet, the viewer may be interested in a specific or specialty topic when it comes to his or her viewing preferences. Advantageously, the exemplary topic list 40 adds features that may be used with either the exemplary array 10 or the



exemplary time slot array 22 to provide the viewer with topic related programming information.

An exemplary user interface may include an exemplary topic list 40 such as illustrated in Fig. 3. The topic list 40 includes topic entries such as illustrated in Fig. 3 as follows: All Shows 42; Local News 44; National News 46; World News 48; Baseball 50; Basketball 52; Football 54; Hockey 56; Ice Skating 58; Martial Arts 60; Racing 62; Soccer 64; Track and Field 66; All Sports 68; and like topics. A viewer may review the topic list 40 to find a topic entry of interest. If the viewer selects a topic entry, then the selected topic entry may be highlighted on the topic list 40 of the user interface.

Additional effects may result from a topic entry being selected by a viewer from the topic list 40. These additional effects may take place on or with respect to an array(s) that provides the viewer with programming information. Generally, in response to a topic entry being selected by a viewer from the topic list, a channel indicator(s), show title(s) and/or program title(s) in the array and related to the topic of the topic entry are highlighted. This highlighting effectively makes the show titles or program titles related to the topic stand out in the array so that the channel indicator(s), show title(s), and/or program title(s) may be more easily and quickly reviewed by the viewer.

An additional feature of the topic list is a more focused provision of programming information to the viewer. Once the viewer selects a topic entry, the array that provides the viewer with programming information may be configured so the first row of the array contains a highlighted element such as a highlighted channel indicator, show title, and/or program. By including a highlighted element in the first row of the array, the viewer is provided with selected topic information rather than the general programming information provided by the array. In addition, or alternatively, the array may be configured so that the array only includes rows with highlighted elements. By including only the rows with highlighted elements in the array, the viewer is provided with selected topic information that is more focused than the general information.

Yet another feature of the topic list is a more focused process for review of the array. As noted above, the array is configured so the first row of the array contains a highlighted element. When the viewer desires to continue his or her review, the viewer

may provide an indication and the next row with a highlighted element moves to the top of the array. Alternatively, the viewer may provide an indication that he or she desires to continue the review, and the next highlighted element in the next row may be differentiated from the other highlighted and non-highlighted elements so as to be quicker and easier to see. Also, the viewer may jump to the next highlighted channel indicator in the array.

Figs. 4 and 5 are exemplary arrays illustrating the effect of a selection of a topic entry by a viewer from a topic list. Assume for these examples that the viewer selected the "All Sports" topic entry 68 from the topic list 40 of Fig. 3. Assume the viewer has selected or been provided with an array that provides him or her current show and next show information similar to the array 10 described in connection with Fig. 1. Also note, as illustrated in Fig. 1, the array 10 includes ten rows with the last six rows having the following channel indicators: 6-CNN 70; 7-ESPN 72; 8-CSPAN 74; 9-MTV 76; 10-HBO 78; and 11-SHOW 80.

Once the viewer selects the "All Sports" topic entry 68 from the topic list 40 of Fig. 3, then the array 10' illustrated in Fig. 4 is configured in several ways. Elements such as the channel indicators, current show titles, and next show titles in the array 10' that are related to the topic of the topic entry are highlighted. The following channel indicators are highlighted in array 10' to indicate the corresponding channels carry programming related to the topic of the topic element selected by the viewer: 6-CNN; 7-ESPN; 10-HBO. The following current show titles are highlighted in array 10' to indicate the corresponding current shows relate to the topic of the topic element selected by the viewer: NASCAR HEROES; and ROCKY XX. The following next show titles are highlighted in array 10' to indicate the corresponding next shows relate to the topic of the topic element selected by the viewer: SPORTS HIGHLIGHTS; and X500 NASCAR PRE-RACE SHOW.

Another way in which the array 10' is configured in response to the selection of the "All Sports" topic entry by the viewer is that the array 10' is changed from the array 10 of Fig. 1 to include only that portion of the array that encompasses the highlighted elements. There are no elements in the first four rows of array 10 that are related to the

selected topic entry. The highlighted elements in array 10' are scattered among the last six rows 70', 72', 74', 76', 78', and 80'. Thus, only these last six rows are included in the array 10' based on the selection of the "All Sports" topic entry by the viewer. The clever reader will note that two of the rows (row 74' and row 76') do not include any highlighted elements. In an alternate embodiment, these two rows 74' and 76' also would be deleted from the array 10' so as to only provide the viewer with rows having topic related (i.e., highlighted) elements.

Yet another way in which the array 10' is configured in response to the selection of the "All Sports" topic entry is by the presentation of topic related information in a readily reviewable format. Particularly, the feature provides that the first row that appears in the array include a highlighted element(s). In Fig. 4, the first row 70' that appears in array 10' includes the highlighted elements of 6-CNN and SPORT HIGHLIGHTS. Typically, a viewer reviews an array by first reviewing the first row. By this feature of including as the first row a row that includes highlighted elements, the feature makes the programming information more easy and quick to review.

After the highlighting, the array 10' may be operative to receive an indication from the viewer to view a program having the topic in common with the selected topic entry. In other words, the viewer may select one of the highlighted elements and provide an indication of the selection to the user interface. The array then may cause the program to be displayed on the monitor of the media device.

Fig. 5 includes an exemplary time slot array 22' illustrating the effect of a selection of a topic entry by a viewer from a topic list. As with the array 10' of Fig. 4, the array 22' is configured to highlight the elements in the array related to the topic of the topic entry. In addition, the array 22' is changed from the array 22 of Fig. 2 to include only that portion of the array that encompasses the highlighted elements. There are no elements in the first four rows of array 22 that are related to the selected topic of the topic entry. The last six rows of array 22 include rows 82, 84, 86, 88, 90, and 92. The highlighted elements in array 22' are scattered among the last six rows which appear in Fig. 5 as rows 82', 84', 86', 88', 90', and 92'. Thus, only these last six rows are included in the array 22' based on the selection of the "All Sports" topic entry by the viewer. Also

like array 10', the array 22' includes two rows (86' and 88') that do not include highlighted elements. In an alternate embodiment, these two rows 86' and 88' also would be deleted from the array 22'. Further, the array 22' is configured so that the first row 82' includes at least a highlighted entry.

5       After the highlighting, the array 22' may be operative to receive an indication from the viewer to view a program having the topic in common with the selected topic entry. In other words, the viewer may select one of the highlighted elements and provide an indication of the selection to the user interface. The array then may cause the program to be displayed on the monitor of the media device.

10       As illustrated herein, the topic list 40 appears separately from either the array 10' of Fig. 4 or the array 22' of Fig. 5. In a user interface, the topic list 40 may appear on a separate screen or separate display from the arrays, but the topic list 40 also may be included on the screen or display with either one or both of the arrays.

15    An Exemplary Specialty Topic List - Fig. 6

      The advantageous features of the topic list described in connection with Fig. 3 may be furthered through the use of a specialty topic list that is a list of specialty topics related to one of the topic entries in a topic list. Like the topic list, the specialty topic list may be used with either or both the exemplary array 10 or the exemplary time slot array 22 to  
20   provide the viewer with specialty topic related programming information.

      Fig. 6 illustrates an exemplary topic list 100. The topic list 100 includes topic entries including: All Shows 102; News 104; Childrens 106; Comedy 108; Drama 110; Games; Home, Garden & Cooking 113; and Sports 116. Each or only selected one(s) of the topic entries may include or correspond to a specialty topic list.

25       Fig. 6 also illustrates two exemplary specialty topic lists that are related to topic entries in the topic list 100. Specialty topic list 118 is related to topic entry News 104 in the topic list 100. The relationship between the specialty topic list and the topic entry may be based on various factors. A common relationship is a set/subset relationship. For example, the topic entry News 104 may be considered to be a set with the specialty topic  
30   entries in the specialty topic list 118 being a subset of the set. The specialty topic list 118

includes the specialty topic entries of All News 120; Local News 122; National News 124; World News 126; and Weather 128.

The other specialty topic list 130 illustrated in Fig. 6 is related to topic entry Sports 116 in the topic list 100. The topic entry Sports 116 may be considered to be a set with the specialty topic entries in the specialty topic list 130 being a subset of the set. The specialty topic list 130 includes the specialty topic entries of All Sports 132; Baseball 134; Basketball 136; Football 138; Hockey 140; Ice Skating 142; Martial Arts 144; Racing 146; Soccer 148; Track and Field 150; and Wrestling 152. Thus, the viewer may select a topic entry such as Sports 116 from the topic list. In response, the specialty topic list 130 corresponding to the selected topic entry may be displayed. The viewer then may use the specialty topic list 130 as he or she would use a topic list as explained above. For example, a specialty topic entry may be selected as an elected specialty topic entry and that elected specialty topic entry may be highlighted on the user interface. Further, the array providing programming information to the viewer may interact with the topic list and the specialty topic list. For example, the array may respond to the election of an elected specialty topic entry. In particular, the response may be the highlighting in the array of elements such as channel indicators, show titles, and/or program titles a topic in common with the elected specialty topic entry. Further, the array may be operative to receive an indication from the viewer to view the program having the topic in common with the elected specialty topic entry. The array then may cause the program to be displayed on the monitor of the media device.

As illustrated herein, the specialty topic lists 118 and 130 appear connected or otherwise related to the topic list 100. In a user interface, a specialty topic list may appear by itself or with other specialty topic lists on a separate screen or on separate display from the arrays. But the specialty topic list also may be included on the screen or display with either one or both of the arrays and/or with other specialty topic lists and/or topic lists.

#### Single Time Slot and Array - Fig. 7

Advantageously, the present inventions include another exemplary user interface. As illustrated in Fig. 7, this exemplary user interface includes a time slot 154 and an array

156. The programming information in the array 156 presents program titles that are available during the time slot. Other program titles that may be available at other times are not presented. This exemplary user interface may be preferred to more complicated and detailed user interfaces by a viewer who is interested in knowing what is available  
5 during a selected time period, and who would like that information presented in as simple and readily understandable manner as possible.

As noted, the exemplary user interface includes a time slot 154 and an array 156. The time slot 154 provides for the display of a time period as may be selected by the viewer such as the 10:00 to 10:30. The illustrated time period is of thirty minutes  
10 duration because that time period compares well to the length of television programs. Other durations for the time period in the time slot 154 may be selected.

As noted, the time period may be selected or changed by the viewer. Fig. 7 includes two arrows (left arrow 158, right arrow 160) to facilitate the selection or change in the time period. If the left arrow 158 is selected, the time period becomes increasingly  
15 early. For example, 10:00 may be changed with the left arrow 158 to 9:59, then 9:58, etc. In an alternate embodiment, the time period may be changed only in thirty minute increments. So, in the example, the next earlier time period prior to 10:00 would begin at 9:30. The right arrow 160 may be used by the viewer to advance the time period in a similar fashion. Other mechanisms for changing or selecting the time period in the time  
20 slot 154 may be used such as a menu, input through keyboard, keypad, infrared remote control, etc.

The array 156 includes two columns (channel column 162 and program column 164) having commonly aligned rows. There is a top or title row 166 in each column, but the top or title row is not considered a row of information and so is referred to herein  
25 separately. Each row of the channel column 162 includes a channel indicator as did the rows of the channel columns in the other described arrays of exemplary embodiments. Each row of the program column 164 includes a program title naming a program available for viewing during the selected time period on a channel of the media device corresponding to the channel indicator in a commonly aligned row in the channel column.

For example, the first row 160 includes "Batman" as the program title naming the program available for viewing from 10:00 - 10:30 on Channel 2 - NBC.

5 This exemplary user interface allows a viewer to select a time period, and then, to review the programming that is available on the available channels during that selected time period.

10 This exemplary user interface allows a viewer to change the time period in the time slot 154. If the time period is changed, then the program title in each row of the program column 1654 may change as necessary to a different program title naming a different program available for viewing during the different selected time period. Of course, a program title in a particular row may not appear to the viewer to change if the same program is available during the different selected time period as well as the originally selected time period.

15 Further in this exemplary user interface, the array 156 may be receptive to a selection by the viewer of a selected row, a selected channel indicator, or a selected program title. In response, the selected row, the selected channel indicator, or the selected program title may be highlighted. Further, the program corresponding to the selected row, the selected channel indicator, or the selected program title may be displayed on the monitor of the media device. This display may come about through the receipt by the array of an indication from the viewer for such display.

20 As illustrated herein, the time slot 154 and the array 156 on the same illustration, and so they may appear together on a monitor or screen presenting the user interface. Alternatively, the time slot 154 may appear separately from the array 156.

### Conclusion

25 In sum, exemplary embodiments of the present inventions have been described above so as to demonstrate methods, systems, and user interfaces for presenting information related to available programming to a viewer and/or other user. In particular, the descriptions have included user interfaces that provide a viewer with current show/next show information, that provide temporal information based on a time period

having time slots, that provide topic and specialty topic information; and that provide programming information based on a single time slot.

The present invention and exemplary embodiments thereof have been explained in detail. Nevertheless, it will be understood that variations and modifications can be  
5 effected within the spirit and scope of the invention as described hereinabove and as defined in the appended claims.



## CLAIMS

We claim:

5

1. A user interface presented on a monitor of a media device for providing a viewer with information about programs and shows available for viewing, the user interface comprising:

10 an array displaying on the monitor of the media device three columns having commonly aligned rows;

the three columns comprising a channel column, a current show column, and a next show column;

each row of the channel column comprising a channel indicator;

15 each row of the current show column comprising a current show title, the current show title naming a program available for viewing at the current time on a channel of the media device corresponding to the channel indicator in a commonly aligned row in the channel column; and

20 each row of the next show column comprising a next show title, the next show title naming a show available for viewing after the program available for viewing at the current time on the channel of the media device corresponding to the channel indicator in the commonly aligned row in the channel column,

25 whereby the viewer is provided with the information about the program available for viewing at the current time and the show available after the program on a particular channel by a review of a corresponding particular row in the array that is commonly aligned in the three columns.

2. The user interface of Claim 1, wherein the array is receptive to a selection of one of the commonly aligned rows as a selected row, and

30 in response to the selection, the array is operative to cause the selected row to be highlighted.

3. The user interface of Claim 2, wherein the selected row comprises a selected current show title in the current show column, the selected current show title naming a selected program available for viewing at the current time; and

5 wherein the array is further operative, in response to the selection, to cause the selected program to be displayed on the monitor of the media device.

4. The user interface of Claim 1, wherein the array is receptive to a selection of the channel indicator or of the current show title of one of the commonly aligned rows, respectively, as a selected channel indicator or as a selected current show title, and

10 in response to the selection, the array is operative to cause respectively, the selected channel indicator or the selected current show title to be highlighted.

5. The user interface of Claim 4, wherein the selected channel indicator or the selected current show title corresponds by way of the one of the commonly aligned rows to a selected program available for viewing at the current time; and

15 wherein the array is further operative, in response to the selection, to cause the selected program to be displayed on the monitor of the media device.

6. The user interface of Claim 1, further comprising:  
20 a topic list having topic entries presented on the monitor of the media device prior to or with presentation of the array;

the topic list being receptive to a selection of one of the topic entries as a selected topic entry; and

25 in response to the selection, the topic list being operative to highlight the selected topic entry.

7. The user interface of Claim 6, wherein the array is operative, in response to the selection of the selected topic entry from the topic list, to cause the highlighting of a current show title in the current show column, the current show title naming a program  
30 having a topic in common with the selected topic entry from the topic list.

8. The user interface of Claim 6, wherein the array is operative, in response to the selection of the selected topic entry from the topic list, to cause the highlighting of a next show title in the next show column as a highlighted next show title, the highlighted  
5 next show title naming a show having a topic in common with the selected topic entry from the topic list.

9. The user interface of Claim 8, wherein the array is further operative, in response to the highlighting, to receive an indication to view the program having the topic  
10 in common with the selected topic entry from the topic list, and to cause the program having the topic in common with the selected topic entry to be displayed on the monitor of the media device.

10. A user interface presented on a monitor of a media device for providing a viewer with information about programs and shows available for viewing in response to an indication of a topic interest from the viewer, the user interface comprising:

5 A. a topic list having topic entries presented on the monitor of the media device, the topic list being receptive to a selection of one of the topic entries as a selected topic entry, and in response to the selection, the topic list being operative to cause the selected topic entry to be highlighted;

B. an array presented on the monitor of the media device, the array comprising  
10 three columns having commonly aligned rows,

the three columns comprising a channel column, a current show column, and a next show column,

each row of the channel column comprising a channel indicator,

each row of the current show column comprising a current show title, the current  
15 show title naming a program available for viewing at the current time on a channel of the media device corresponding to the channel indicator in a commonly aligned row in the channel column,

each row of the next show column comprising a next show title, the next show title naming a show available for viewing after the program available for viewing at the  
20 current time on the channel of the media device corresponding to the channel indicator in the commonly aligned row in the channel column; and

C. the array being operative, in response to the selection of the selected topic entry from the topic list, to cause the highlighting of a current show title as a highlighted current show title in the current show column, the highlighted current show title naming a  
25 program having a topic in common with the selected topic entry of the topic list.

11. The user interface of Claim 10, wherein the array is operative, in response to the selection of the selected topic entry from the topic list, to cause highlighting of a next show title as a highlighted next show title in the next show column, the highlighted  
5 next show title naming another program having the topic in common with the selected topic entry of the topic list.

12. The user interface of Claim 10, wherein the array is operative to receive an indication to view the program having the topic in common with the selected topic entry  
10 of the topic list, and to cause the program having the topic in common with the selected topic entry to be displayed on the monitor of the media device.

13. A user interface presented on a monitor of a media device for providing a viewer with information about programs and shows available for viewing in response to  
15 an indication of a specialty topic interest from the viewer, the user interface comprising:

A. a topic list having topic entries presented on the monitor of the media device,

a topic entry of the topic list comprising a specialty topic list that may be selectively presented on the monitor of the media device,

20 the specialty topic list comprising specialty topic entries, the specialty topic entries of the specialty topic list being related to the topic entry of the topic list,

the topic list being receptive to a selection of the topic entry as a selected topic entry, and in response to the selection, the topic list being operative to cause display  
25 of the specialty topic list on the monitor of the media device, and

the specialty topic list being receptive to an election of a specialty topic entry from the specialty topic entries of the specialty topic list as an elected specialty topic entry;

B. an array presented on the monitor of the media device, the array comprising  
30 three columns having commonly aligned rows,

the three columns comprising a channel column, a current show column, and a next show column,

each row of the channel column comprising a channel indicator,

each row of the current show column comprising a current show title, the current  
5 show title naming a program available for viewing at the current time on a channel of the  
media device corresponding to the channel indicator in a commonly aligned row in the  
channel column,

each row of the next show column comprising a next show title, the next show title  
naming a show available for viewing after the program available for viewing at the  
10 current time on the channel of the media device corresponding to the channel indicator in  
the commonly aligned row in the channel column; and

C. the array being operative, in response to the election of the elected specialty  
topic entry from the specialty topic list, to cause the highlighting of a current show title as  
a highlighted current show title in the current show column, the highlighted current show  
15 title naming a program having a topic in common with the elected specialty topic entry of  
the specialty topic list.

14. The user interface of Claim 13, wherein the array is operative to receive an  
indication to view the program having the topic in common with the elected specialty  
20 topic entry of the topic list, and to cause the program having the topic in common with the  
elected specialty topic entry to be displayed on the monitor of the media device.

15. A user interface presented on a monitor of a media device for providing a viewer with information about programs available for viewing during a selected time period, the user interface comprising:

- 5 a time slot indicating the selected time period;  
an array of two columns having commonly aligned rows;  
the two columns comprising a channel column and a program column;  
each row of the channel column comprising a channel indicator; and  
each row of the program column comprising a program title, the program title  
10 naming a program available for viewing during the selected time period on a channel of  
the media device corresponding to the channel indicator in a commonly aligned row in the  
channel column,  
whereby the viewer is provided with the information about the programs available  
for viewing during the selected time period by a review of the commonly aligned rows in  
15 the array.

16. The user interface of Claim 15, wherein the time slot may be changed to indicate a different selected time period; and

- wherein, in response to the different selected time period, the program title in each  
20 row of the program column changes to a different program title naming a different  
program available for viewing during the different selected time period on the channel of  
the media device corresponding to the channel indicator in the commonly aligned row in  
the channel column.

- 25 17. The user interface of Claim 16, wherein the program title in a particular  
row of the program column remains the program title without changing to the different  
program title when the program rather than the different program continues to be  
available for viewing during the different selected time period.

18. The user interface of Claim 15, wherein the array is receptive to a selection of one of the commonly aligned rows as a selected row, and  
in response to the selection, the array is operative to highlight the selected row.

5 19. The user interface of Claim 18, wherein the selected row comprises a selected program title in the program column, the selected program title naming a selected program available for viewing during the selected time period; and

wherein the array is further operative, in response to the selection, to cause the selected program to be displayed on the monitor of the media device.

10

20. The user interface of Claim 15, wherein the array is receptive to a selection of the channel indicator or of the program title of one of the commonly aligned rows, respectively, as a selected channel indicator or as a selected program title, and

15 in response to the selection, the array is operative to highlight, respectively, the selected channel indicator or the selected program title.

21. The user interface of Claim 20, wherein the selected channel indicator or the selected program title corresponds by way of the one of the commonly aligned rows to  
20 a selected program available for viewing during the selected time period; and

wherein the array is further operative, in response to the selection, to cause the selected program to be displayed on the monitor of the media device.



FIG. 1

Diagram illustrating a television schedule table (FIG. 1). The table is organized into columns and rows, with callouts 10, 12, 14, and 16 indicating specific components.

CHANNEL	START TIME	CURRENT SHOW	START TIME	NEXT SHOW
2 - NBC	10:00AM	BATMAN	11:00AM	SPIDERMAN
3 - CBS	9:30AM	HOME FINANCE	10:30AM	HOME REPAIR
4 - ABC	10:05AM	SPECIAL REPORT:RUSSIA	10:30AM	TODAY IN HISTORY
5 - FOX	10:00AM	AS THE WORLD TURNS	10:30AM	DYNASTY
6 - CNN	10:15AM	HEADLINES	10:45AM	SPORTS HIGHLIGHTS
7 - ESPN	10:00AM	NASCAR HEROES	10:30AM	X500 NASCAR PRE-RACE SHOW
8 - CSPAN	10:00AM	CONGRESS	11:00AM	SENATE
9 - MTV	9:30AM	VIDEOS	10:30AM	STARSLIVE
10 - HBO	10:05AM	ROCKYXX	12:35PM	STAR WARS XX
11 - SHOW	10:00AM	TERMINATOR V	12:30PM	TERMINATOR V

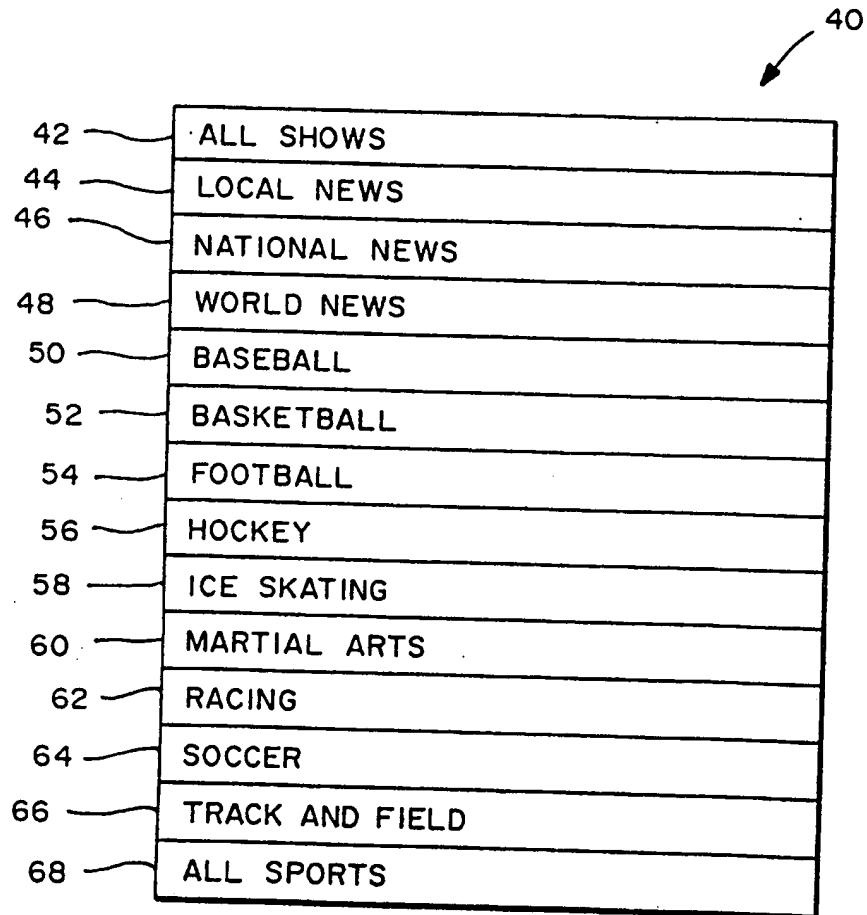
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FIG. 2

34	CHANNEL	10:00 AM-10:30 AM	10:30 AM-11:00 AM	11:00 AM-11:30 AM	11:30 AM-12:00 PM
36	2-NBC	BATMAN	BATMAN	SPIDERMAN	AVENGERS
	3-CBS	HOME FINANCE	HOME REPAIR	HOME DECORATING	HOME FOR HOLIDAYS
	4-ABC	SPECIAL REPORT:RUSSIA	TODAY IN HISTORY	FUTURE 2000	WORLD REVIEW
	5-FOX	AS THE WORLD TURNS	DYNASTY	DALLAS	MELROSE PLACE
82	6-CNN	HEADLINES	SPORTS HIGHLIGHTS	DC UPDATE	BUSINESS REVIEW
84	7-ESPN	NASCAR HEROES	X500 NASCAR	X500 NASCAR	X500 NASCAR
86	8-CSPAN	CONGRESS	CONGRESS	SENATE	HEARINGS
88	9-MTV	VIDEOS	STARSLIVE	VIDEOS	DEADSTARS
90	10-HBO	ROCKYXX	ROCKYXX	ROCKYXX	ROCKYXX
92	11-SHOW	TERMINATOR V	TERMINATOR V	TERMINATOR V	TERMINATOR V

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FIG. 3



CHANNEL	START TIME	CURRENT SHOW	START TIME	NEXT SHOW
6 - CNN	10:15 AM	HEADLINES	10:45 AM	SPORTS HIGHLIGHTS
7 - ESPN	10:00 AM	NASCAR HEROES	10:30 AM	X500 NASCAR PRE-RACE SHOW
8 - CSPAN	10:00 AM	CONGRESS	11:00 AM	SENATE
9 - MTV	9:30 AM	VIDEOS	10:30 AM	STARSLIVE
10 - HBO	10:05 AM	ROCKY XX	12:35 PM	STAR WARS XX
11 - SHOW	10:00 AM	TERMINATOR V	10:30 PM	TERMINATOR V

FIG. 4

10:00AM-10:30AM	10:30AM-11:00AM	11:00AM-11:30AM	11:30AM-12:00 PM
HEADLINES	SPORTS HIGHLIGHTS	DC UPDATE	BUSINESS REVIEW
NASCAR HEROES	X500 NASCAR	X500 NASCAR	X500 NASCAR
CONGRESS	CONGRESS	SENATE	HEARINGS
VIDEOS	STARSLIVE	VIDEOS	DEAD STARS
ROCKY XX	ROCKY XX	ROCKY XX	ROCKY XX
TERMINATOR V	TERMINATOR V	TERMINATOR V	TERMINATOR V

FIG. 5

FIG. 6

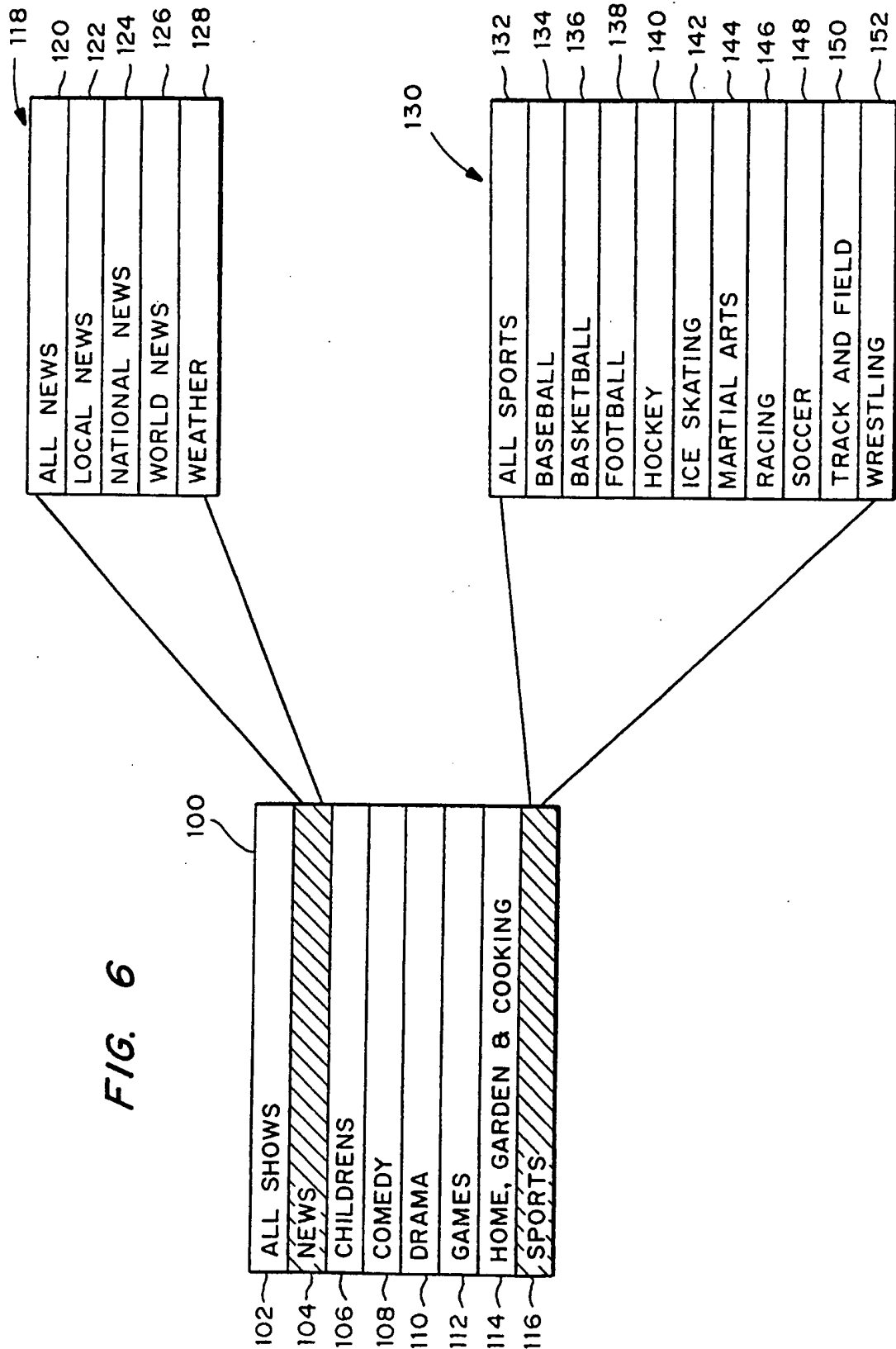
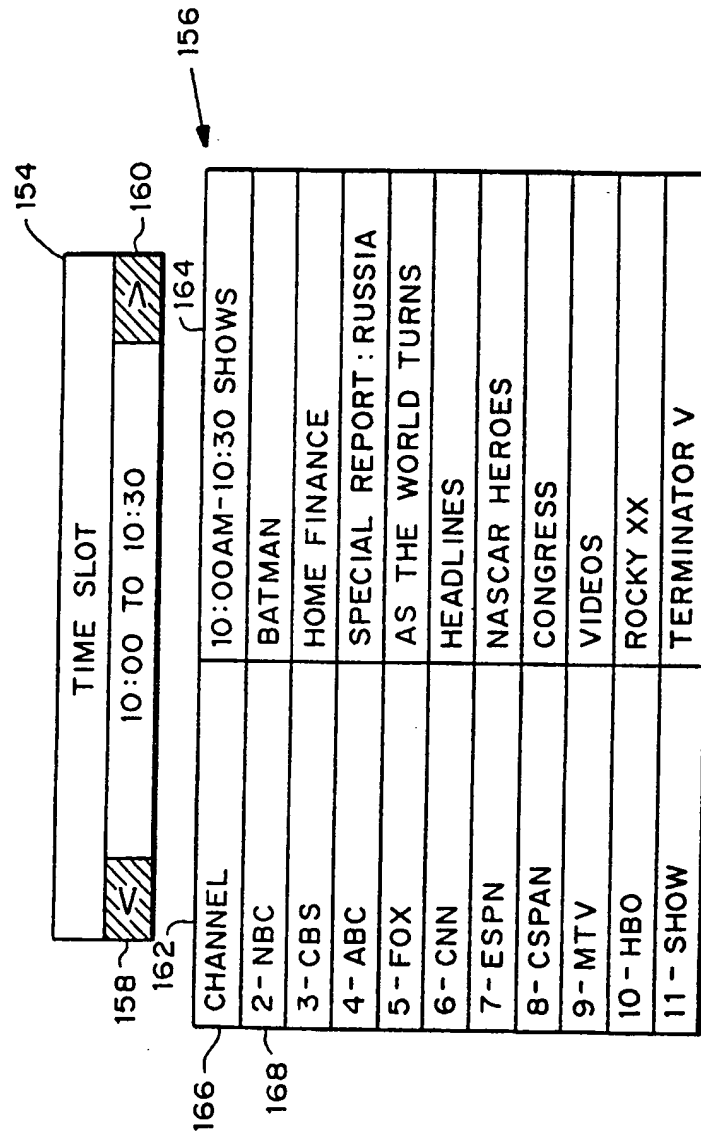


FIG. 7



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